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IDEA-0277-67
Copy #6
7 April 67

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MEMORANDUM FOR : [redacted] Lockheed Aircraft Corp.

SUBJECT : Ejection System Features

REFERENCE : Pyrotechnic Schematic
25X1 [redacted] 2 February 1967

1. As you recall, we discussed the referenced schematic during our 1 March meeting. Attachment #1 is my version of the schematic we looked at then, with the addition of a second ship/seat disconnect and an additional 0.3 second delay initiator which we decided was necessary to tie in the control column thruster to the alternate activation system. As you recall, we also discussed the fact that the foot retractor actuator would not be tied into the alternate system even with the proposed additions.

2. Upon further study of this proposed schematic I noticed two more problem areas, one each in the primary and alternate systems. As shown in Attachment #1, the primary system will fire the catapult, after a 0.3 second delay, even if the canopy was not removed. This desirable feature has one significant drawback. Since the control column thruster is also on the ship side of the system, a failure of the primary ship/seat disconnect would allow the catapult to fire without the control column being stowed and could result in the major-to-fatal pilot injury and/or ejection seat failure as we discussed previously. In the alternate activation circuit, as it was modified at our meeting, the shoulder harness reel as well as the foot retractor actuator would not be activated as they would be by the primary system. This lack of restraint could be critical upon catapult firing particularly during potential aircraft gyrations at the time of ejection.

3. Attachment #2 is my layman's approach to a solution to the problems described above. If the primary activation system could be tied into the second, but separate, ship/seat disconnect, it appears that the reliability factor would be enhanced with respect to ships side of the system (particularly the control column thruster). The alternate activation system could then be tied into the primary circuit as shown to provide for activation of all actuators. However, if further redundancy is desired, the alternate activation system could be tied in as shown in Attachment #3.

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4. I realize I have taken great liberties in the addition of components, particularly check valves in Attachment #3. However, the concern over the control column stowage by the primary and the problem of adequate restraint if the alternate is used, is warranted in my estimation. The attachments only represent my ideas for solutions and I am sure that your consideration of these thoughts along with [redacted] and your reliability and escape system people will produce more effective ways of solving the problems outlined. I would appreciate your keeping me advised on this matter. 25X1

(Signed)
[redacted]
ASD/OSA 25X1

Attachments: 3
As Noted Above

Distribution:
25X1
1 - [redacted] LAC w/att
2 - [redacted] w/att
3 - [redacted] w/att (hand carried)
4 - D/R&D/OSA wø/att
5 - ASD/OSA wo/att
6 - RB/OSA wo/att

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